

GBM Burst Alert Messages

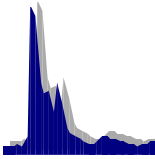
Immediate Information to LAT

- ◆ Purpose is to allow LAT mode changes.
- ◆ SRD Requirement of 2 s, goal of 1 s.
- ◆ SRD goal of 15 degree location accuracy (no requirement).
- ◆ GBM requirement of 20 degree accuracy, goal of 10 degrees.
- ◆ Information:
 - time
 - location in J2000, with error bar
 - classification (with reliability)
 - intensity in first 1 second
 - spectral hardness?
 - What else (trigger details, BGO rates)?
- ◆ Is there any value in an immediate notification of a trigger with no location or classification information?

GBM Burst Alert Messages

Post-Burst Information to LAT

- ◆ **Primary purpose is to provide information for repoint decision.**
- ◆ **No specific requirements or goals defined.**
- ◆ **Best time delay is ~1 minute after trigger.**
- ◆ **Information (periodic update):**
 - **Revised location and error bar (from ground?)**
 - **revised classification and reliability**
 - **peak flux**
 - **fluence**
 - **spectral information**
 - **what else?**



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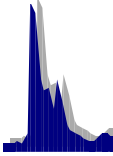
Immediate Information to Ground

- ♦ Purpose is to allow real-time burst observations by robotic telescopes.
- ♦ SRD requirement of 2 s, goal of 1 s.
- ♦ SRD goal of 15 degree location accuracy (no requirement).
- ♦ GBM requirement of 5 degree location in 5 s (bright burst).
- ♦ Location computed on ground for best accuracy.
- ♦ GBM provides software, MOC processes & sends to GCN.
- ♦ Information:
 - time
 - location in J2000, with error bar
 - classification (with reliability)
 - intensity in first 1 second
 - geocenter angle
 - burst and background rates
 - spectral hardness?

GBM Burst Alert Messages

Post-Burst Information to Ground

- ◆ Purpose is to provide best information for quick afterglow searches.
- ◆ No specific requirements or goals defined.
- ◆ Best time delay is ~1 minute after trigger.
- ◆ Location computed on ground for best accuracy.
- ◆ GBM provides software, MOC processes & sends to GCN.
- ◆ Information (periodic update):
 - Revised location and error bar (from ground?)
 - revised classification and probability
 - peak flux
 - fluence
 - spectral information
 - rates before and during burst



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Telemetry Considerations

- ◆ Instrument with better location should get real-time priority.
- ◆ Information continually updated during burst.
- ◆ Time history, including pre-burst rates, transmitted for best ground location.
- ◆ Baseline plan uses 1800 bps for 90 seconds, then much lower.
- ◆ Burst rates transmitted for 500 seconds.

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Final Locations

- ◆ Not an alert message.
- ◆ GBM requirement of 3 degree location within 1 day of data receipt.
- ◆ Computed at GBM IOC.
- ◆ GBM IOC sends to GCN.
- ◆ Provides best possible location.